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VIRGINIA COASTAL PROGRAM NEWS

Virginia's Coastal Resources Management Program links state, local, and federal efforts to enhance Virginia's coastal resources. Virginia's coastal zone includes the 29 counties and 15 cities of Tidewater Virginia, and all tidal waters out to the three mile territorial sea boundary. The program includes state laws and policies to protect and manage Virginia's coastal resources, implemented by the Departments of Environmental Quality, Conservation and Recreation, Game and Inland Fisheries, and Health, and the Marine Resources Commission. The Department of Environmental Quality serves as lead agency for the program.

DEQ
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
VIRGINIA COASTAL PROGRAM

Helping Falcons Soar Again in Virginia

In March of this year, more than 160 feet in the air atop the James River Bridge just south of Newport News, life-long peregrine falcon mates "James" and "Virginia" started a new family. They also helped begin what will be a three-year odyssey for a group of state, federal and private partners hoping to track the movement of young peregrine falcons with solar-powered transmitters fitted onto their backs. In all, 19 young falcons that were raised or "hacked" and released from locations around the state will be the stars of "FalconTrak," the largest peregrine falcon study to use satellite technology. This technology will permit researchers, students, and fans of the birds, to track the location of the falcon, wherever they are in the world, via internet.

The partners in FalconTrak hope to answer some questions about the nesting and migratory habits of this mysterious bird. Specifically, we know little about the falcon's dispersal patterns, migration status, wintering areas and survivorship of the young (of much concern is whether they are at high risk for contaminant exposure). We also hope to learn if the birds return to their natal area and form pairs and nest near the site they themselves were born or hacked.

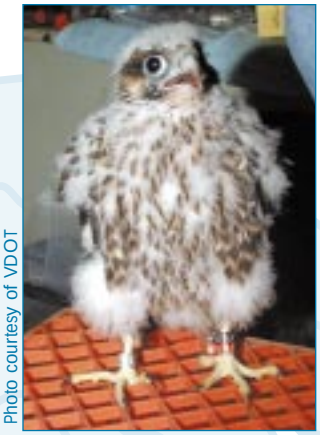


Photo courtesy of VDOT

Pesticide poisoning and other factors nearly drove the peregrine falcon to extinction east of the Mississippi River by the late 1960s. The last surviving pair vanished from Virginia in the early 1960s.

Efforts to reestablish falcons in the continental United States involved breeding a variety of subspecies of peregrines from around the world with surviving native birds, explains Dr. Mitchell Byrd, co-founder of the Center for Conservation Biology at the College of William and Mary, and one of the most respected raptor experts in the world. Dr. Byrd, working with the Virginia Department of Game and Inland Fisheries (VDGIF), coordinated the first reintroduction efforts for the species in the state in 1978, releasing five young falcons on Virginia's Eastern Shore. Between 1978 and 1993 he directed the release of an additional 250 falcons from some 20 sites across the Eastern Shore and the mountains of Virginia.

This work produced offspring with ancestors that were migratory birds and ancestors that were

Continued on page 3

Message From The Director

Dennis H. Treacy

Partners. Partnerships. We hear these words used more and more often today. We have also seen what true partnerships around Virginia can accomplish. Partnerships can provide the financial and human resources, scientific and institutional knowledge, and the short and long-range vision that are necessary to accomplish the environmental goals we have set for ourselves in this new century and in the months to come.

Partnerships are particularly important in managing Virginia's diverse and expansive coastal resources. Good coastal zone management is rooted in partnership. It can not be accomplished without the cooperation of every one of us who look to the coast and its resources for our livelihood and enjoyment.

Partnerships are integral to the success of the projects we present in this issue of the *Virginia Coastal Program News.* You'll read how Virginia is in the forefront of applying satellite technology to re-establish one of the most impressive birds in Virginia's skies. How we have excited marinas to be on the frontlines of combating pollution of Virginia's waterways. And, how our citizens and businesses are stepping forward with the financial support necessary to rebuild Virginia's oyster reefs.

There is always *room at the table* – an opportunity for each and every one of us to learn how to be better stewards of our coastal resources and make the connection between the health and vitality of our coastal zone and our own prosperity.

In this Issue . . .

More Clam$ for the Oysters...

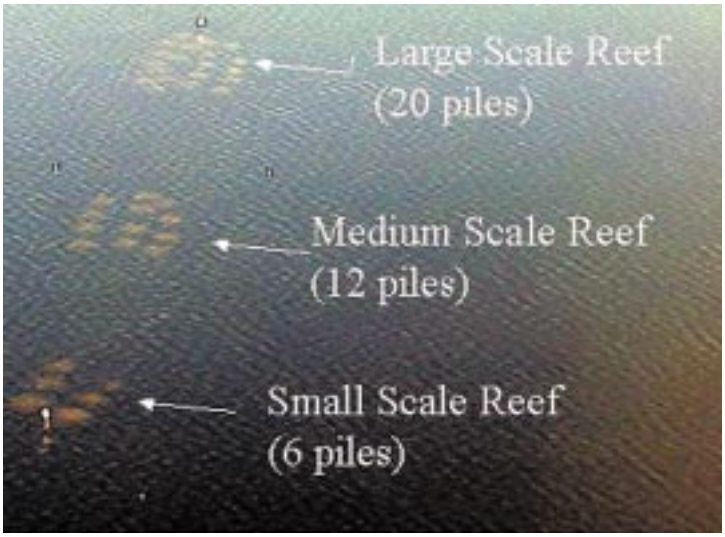
The Lynnhaven River in Virginia Beach may once again be famous for its oysters. The city passed an ordinance in March of this year entitled "My Two Cents for the Oyster Program", pledging 2 cents per resident towards restoration of reefs in the Lynnhaven and Elizabeth Rivers. The city expects to donate $8,505 to the Virginia Oyster Heritage Program (VOHP) for reef restoration and challenged the other 15 Hampton Roads localities to do the same. The Virginia Marine Resources Commission (VMRC), which handles the siting and construction of all Virginia's oyster reefs, has been working with the City of Virginia Beach on a master plan for oyster reef restoration in the Lynnhaven River. Site preparation for the first of these reefs is underway. Funds raised by the city will help with reef construction.

Local support such as this will continue to be necessary to maintain the program as reef restoration expands in the Rappahannock, on the Eastern Shore and in other areas around Virginia's coastal zone.

VOHP Efforts to Date

The VOHP was initiated in March 1999 by the Virginia Coastal Program at the Department of Environmental Quality (DEQ) and the VMRC. To date, the Virginia Coastal Program has provided one million dollars in seed money from the National Oceanic and Atmospheric Administration (NOAA). With these funds and other generous contributions from its partners, such as the Army Corps of Engineers (Corps), the VOHP has built six reefs in the Rappahannock River, using 600,000 bushels of shells, a combination of dredged fossil shells, shucked oyster shells, and surf clam shells. One hundred acres of enhanced harvest area were also cleaned and improved by the addition of live oysters and cultch. Two additional reef sites have been permitted and will be constructed in the Rappahannock this spring and summer. Approximately 5 acres of reef were added by VMRC to the Eastern Shore last summer in South Bay, the Wachapreague area and near Metompkin and Cedar Islands. VMRC expects to add an additional 5 acres this year (mostly South Bay and Wachapreague). Seaside reefs are smaller than those being built in the Bay—2 to 3 feet tall, 10 to 15 wide and 10 to 30 feet long. Recorded spatset on the seventy, smaller tidal seaside reefs built on the shore was extremely high in 2000.

Senator Warner releases seed oysters onto Drumming Ground reef in the Rappahannock River in April. The seed was donated by the Chesapeake Bay Foundation's oyster aquaculture farm on Sarah's Creek in Gloucester County. Photo courtesy of DEQ.



Aerial photo of Drumming Ground reef on the Rappahanock. Note reefs have been constructed in different shapes and sizes for research/monitoring purposes. Photo courtesy of VIMS.

Reef construction on the Eastern Shore is done in tandem with sea grass restoration. Now in the middle of its fourth year, a study by the VMRC and the Virginia Institute of Marine Science on the Eastern Shore focuses on the interdependent relationship between oysters and sea grass. This study, as well as others in the Chesapeake Bay, suggests that the ecological value of oyster reefs extends to the survival and abundance of sea grass.

A Busy Future and Challenges Ahead for the Program

Along with the development of the VOHP, several other activities in 2000 have significantly accelerated the pace of oyster restoration in the Chesapeake Bay. The VOHP served as a catalyst for a Baywide commitment to a 10-fold increase in oyster populations over the next 10 years and the Chesapeake Bay Program endorsed the VOHP model—brood stock sanctuary

Continued on page 12

Norfolk Rotary Contributes To Reefs for Third Year

Thanks to the continuing generosity of the Norfolk Rotary, the Virginia Oyster Heritage Foundation has increased its coffers by $30,000! The Rotary held its second fundraiser for the Foundation on March 24. The Rotary's 2000 fundraising dinner collected $40,000 for the Foundation.

Falcons...

Continued from page 3

non-migratory. "While efforts to preserve the peregrine falcon have been successful, these birds that have been bred to repopulate the eastern part of the country are shrouded in mystery," Byrd said. "Most importantly, no one really knows if they have inherited the wanderlust of their foreign ancestors or the stay-at-home characteristics of the native species." The northern falcons have been known to migrate as far as Argentina and other South American countries. "We know that some of the new breed of birds stay very close to their home territory throughout the year," Byrd said. "But many of them also migrate in the fall. To put it simply, we have virtually no clue where they go."

While the peregrine falcon has been removed from the U.S. endangered species list, it was added to the Virginia endangered species list last year. There are only 17 known nesting pairs in the state.

The tracking project should provide information that will help ensure the survival of the peregrine, Byrd said. But he warned that the pesticide DDT, which nearly caused the extinction of the falcon in the 1960s and is illegal to use in the United States, is still widely used in South America. "If our birds are migrating to those areas, they may fall victim to the same poisoning that nearly wiped them out three decades ago," Byrd said. "By learning where they go, we can work with those countries to eliminate DDT."

Dominion, working with the Center for Conservation Biology and the Virginia Department Game and Inland Fisheries to establish a breeding pair in Richmond, "hacked" five falcons on the roof of its 22-story building overlooking the James River in Richmond last year. "Because of the public excitement and support that effort generated, when Shawn Padgett of the Center for Conservation approached us last fall about expanding the project to include tracking, we jumped at the chance," says Thos. E. Capps, Dominion's Chairman, President and Chief Executive Officer. "This is a tremendously important project that will provide data crucial to the continued recovery of these magnificent birds." Dominion committed to buy the transmitters and fund the tracking for eight birds, and FalconTrak was born.

"The key to the success of this project is having enough birds to ensure that we could get data," said Shawn Padgett, a biologist with the Center for Conservation Biology who has been working tirelessly to restore Virginia's falcon population. "Unfortunately, the survival rate for young falcons during their first year may be only as high as 50 percent." According to Padgett, the state and federal organizations that also stepped in to fund transmitters and tracking of 11 other birds will make this a viable effort.

The Virginia Department of Game and Inland Fisheries will provide all the falcons in the FalconTrak project. In addition to the lead partners, the Center for Conservation Biology, VDGIF and Dominion, other partners include the Virginia Department of Transportation, Shenandoah National Park, Harpers Ferry National Historical Park, NASA, the U.S. Fish and Wildlife Service and Northstar. They will hack birds at their sites or provide support for the project.

"A significant part of what we do as the state's wildlife agency is to foster an awareness of and appreciation for the Commonwealth's wildlife resources. A partnership like this allows us to take a giant step in not only having a better understanding of the peregrine falcon, but also a greater appreciation for all of our natural resources," states William L. Woodfin, Jr., Director of the Virginia Department of Game and Inland Fisheries.

The Virginia Department of Transportation has been watching over the nesting pair of "Virginia" and "James" for eight years. Nesting pairs seem to be particularly attracted to bridge structures, which are similar to their normal nesting environment on cliff faces and escarpments. "The Virginia Department of Transportation takes their unique relationship with the peregrine falcon very seriously," explains Jeff Southard, VDOT's Assistant Commissioner. "Through placement of nesting boxes on bridges, the agency played a significant role in the recovery of the peregrine falcon in Virginia, and earned the 1998 Federal Highway Administration Excellence Award in the category of Environment Protection and Enhancements."

With the falcons in mind, VDOT has established falcon-specific contract requirements for bridge construction and maintenance in Virginia. Bridge pairs now represent approximately 30 percent of Virginia's known peregrine falcon population. "The bridge tender crews, the maintenance crews and (VDOT's) Environmental Division all took a special interest in ensuring the success of VDOT's Falcon Project," states Southard. "On some occasions we stopped traffic on the (James River) bridge when one of the little ones fell out of the nest onto the bridge work, so

Continued on page 10

The Tracking Technology

The solar-powered satellite transmitters (platform transmitter terminals) which will be used to track the falcons in FalconTrak were developed by North Star Science and Technologies of Baltimore. North Star specializes in design and production of satellite transmitters for application to wildlife.The transmitter was custom designed to track birds and weighs only 20 grams (or 20 paperclips), roughly 3% or less of a falcon's body weight.

"The transmitter is so small that it does not interfere with the peregrine falcons at all, yet it is so powerful that we can track a bird to within 50 meters," explains Blake Henke, a partner at North.

Coastal Partners to Address Coastal Enhancement Strategies

What do the following projects have in common?

The Green Sea Festival. Port of Cape Charles Sustainable Technologies Industrial Park. Use-Conflict Study for Aquaculture. The Virginia Clean Marina Program. The answer is that all of these projects have been developed through Virginia's Coastal Zone Enhancement Program.

The national Coastal Zone Enhancement Program was created in 1990, under the Coastal Zone Management Act, to meet mounting public concern for the wellbeing of the nation's coastal resources. The program allows match-free, multi-year funding for projects which create new enforceable policies in any of nine identified areas: public access, marine debris, coastal hazards, wetlands, special area management plans (SAMPs), ocean resources, cumulative and secondary impacts of growth and development, government energy facility siting and aquaculture. Every four years, under guidance issued by NOAA, state coastal management programs undertake a "Coastal Needs Assessment." The assessment focuses on these nine areas to determine which areas are of high priority for coastal management and funding. Based on this assessment, coastal programs then develop a five-year strategy that concentrates management on several or all of the areas assessed as "high priority".

Virginia's most recent assessment began in late 2000. The Virginia Coastal Program has identified six areas as "high priority": aquaculture, cumulative and secondary impacts, coastal hazards, public access, wetlands and SAMPs. Five out of the six areas were selected for strategy development due to their high likelihood for success. These strategies are outlined below:

Coastal Hazards: Dune Management

Hurricanes and other coastal storms can cause millions of dollars worth of damage in a short time. Dunes, a natural feature in the landscape, can help to ameliorate damage that is caused by storms. Locating and characterizing the remaining dunes in the Chesapeake Bay is critical to coastal hazards planning and sound resource management. This project will characterize most of the dunes in the Bay watershed and recommend changes to Virginia's management program based on the study's findings. Changes to management may include: alternative jurisdictional definitions that would more accurately describe and delineate the functional limits of natural dune systems; enumeration and classification of resources in non-jurisdictional localities to be included in the regulatory program; and inclusion of beaches and their supporting dune systems in designated essential fish habitat areas, with particular emphasis on horseshoe crabs.
Program Partners: VIMS, VMRC, CBLAD, DEQ

Cumulative and Secondary Impacts: Shorelands Management

Many land use decisions allowing for development in the coastal zone are made without the benefit of complete information on the suitability of the shorelands for development or of the coastal resources that will be affected. As a result, the cumulative and secondary impacts of this development are not typically considered. In this multi-year project, CBLAD will create a suitability index to classify the development potential of land, based on physical constraints to development and proximity to sensitive coastal resources. It is expected that local implementation of these policies through the comprehensive planning process will result in changes in land use designations and zoning densities, as well as in recommendations for controlling the impacts of other activities associated with shoreland development such as shoreline erosion control and recreational boating.
Program Partners: CBLAD, DCR, VIMS, DEQ, Tidewater Local Governments

Cumulative and Secondary Impacts: Virginia Clean Marina Program

One of the consequences of increased development in coastal areas is the rapid growth in the number of recreational boaters using Virginia's waters and the corresponding growth and expansion of marina facilities. As a result, we've seen unintended impacts on the very resources that bring people to our coastal waters. In 1999, the Virginia Coastal Program initiated a Marina Technical Advisory Program and Clean Marina Program to help prevent and mitigate nonpoint source pollution from marinas and boating operations. Activities will focus on providing technical assistance to Virginia marinas and boaters on key environmental issues, and best management practices to control nonpoint source pollution. Marinas that go beyond basic compliance with environmental laws and voluntarily adopt a significant level of best management practices will be designated as Virginia Clean Marinas.
Program Partners: DCR, VIMS Sea Grant Marine Advisory Program, DEQ, VDH, VMRC, DGIF

Aquaculture: Aquaculture Management

Many people love to eat clams and oysters and these animals have been harvested from the coast for years. As shellfish resources have dwindled, aquaculture has become more popular. But managing this developing field still faces several challenges. The first is development of all the tools necessary to guide aquaculture activities to the most appropriate locations and then ensure that the activity is sustainable. The second is integrating the various aquatic and terrestrial management programs in the Commonwealth to preserve opportunities for aquaculture into the future. Thus, the policy changes in this strategy are directed at these challenges.

Program Partners: VMRC, VIMS, DEQ

Wetlands: Nontidal Wetlands Management

In order to protect the Commonwealth's wetland resources, nontidal wetlands regulations are being enacted. In order to enhance the effectiveness of this new program, two specific management tools are being developed. The first is a cumulative and secondary impact assessment protocol that will guide permit decisions and form a basis for coordination across regulatory programs. The second is an assessment and review protocol that provides the basis for periodic adjustments to the compensation ratios used to ensure no net loss of wetland acreage and function.

Program Partners: DEQ, VIMS, VMRC, CBLAD

Special Area Management Plan: Dragon Run:

Many activities occur within the Dragon Run watershed including timbering, farming, hunting and trapping. The primary problem this watershed faces is how to balance these traditional uses of the land while maintaining bio-diversity and managing public access. The strategy will address this issue by developing new ordinances, modifying existing ordinances and creating innovative management programs. For example, Memoranda of Understanding between state, local, regional and private user groups will be developed to address public access and use issues.

Program Partners: Middle Peninsula Planning District Commission, VIMS/CBNERRS, DEQ, DCR

Special Area Management Plan: Southern Watershed Area

This project is heading into its sixth year. Over the lifetime of this program, the primary coastal management challenge facing the Southern Watershed Area (SWA) has been the need to preserve its significant natural resources in the face of increasing development pressures. The project has worked towards several policy changes and is in the last stages of getting many of these adopted. The monies provided in FY '02 will be directed towards implementation of these changes, which include: (1) adopting new zoning ordinance changes and educating developers concerning conservation tools and open space requirements; (2) implementation of the Waterway Use Conflict MOA; (3) identifying specific mitigation sites; (4) implementation of a strategic agricultural plan and (5) setting up a range of management and preservation tools for riparian corridors.

Program Partners: Hampton Roads Planning District Commission, Cities of Virginia Beach and Chesapeake, DEQ, DCR *(See Page 8)*

Integration Strategy Concept

The Coastal Needs Assessment and Strategy closes with an "Integration Concept" based on the premise that the ultimate success of many of Virginia's efforts to manage cumulative and secondary impacts will depend on the successful integration of its various regulatory and planning programs. Because Virginia operates a "networked" coastal program comprised of many individual programs housed in separate agencies, coordination and cooperation to achieve common goals is a continuing challenge. Managers at both state and local levels recognize the need for a concerted effort to ensure that objectives are consistent, and that decision making is always cognizant of potential consequences to other programs' goals. For instance, when the VMRC leases a parcel of state-owned subaqueous lands to an individual, and issues a permit for placement of structures on that parcel for aquaculture, success of the venture is far from assured. The physical, chemical and biological conditions at the site will ultimately be determined by a myriad of other state and local regulatory and management actions regarding the use of surrounding waters and lands. VMRC can exercise jurisdiction over shoreline structures on adjacent riparian properties. CBLAD, through the Chesapeake Bay Preservation Act regulates activities in the 100' riparian buffer. DEQ exercises regulatory authority over point source discharges in the area. VDH's Bureau of Shellfish Sanitation decides if the area's water quality is suitable for growing marketable shellfish. And the local government controls the type of land development in the area, ultimately affecting the nonpoint source impacts on water quality. Sustaining a viable aquaculture industry in a specific area requires that all these potential decisions be made with a view to the cumulative and secondary impacts on the desired use of the aquatic resource.

As the seven strategies achieve their individual goals, this integration concept will evolve into a comprehensive plan to integrate the management of Virginia's diverse coastal resources and reduce the unintended conflicts of individual management decisions.

Program Partners: many including VIMS, DEQ, DCR, VMRC, CBLAD

Anne Newsom and Jeannie Butler, Virginia Coastal Program/DEQ

Virginia Clean Marina Program Launched

On January 12, 2001, Virginia Secretary of Natural Resources John Paul Woodley, Jr., was joined at the Virginia Boat Show by marina operators, marine industry representatives and other state officials to launch the Virginia Clean Marina Program. The Clean Marina Program is a Virginia Coastal Program joint agency initiative between the Department of Environmental Quality, the Department of Conservation and Recreation and Virginia Sea Grant at the Virginia Institute of Marine Science.

Funded by coastal zone management grants from NOAA, the Virginia Clean Marina Program is designed as a voluntary program. The program, initiated to help implement Virginia's Coastal Nonpoint Pollution Control Program, will provide pollution prevention guidance and on-site technical assistance to marinas, local governments, and recreational boaters in Virginia's coastal zone to minimize potentially negative impacts on water quality and coastal resources.

The Marina Technical and Environmental Advisory Committee (MTEAC), made up of representatives from Virginia's coastal network of state agencies, the marine trade industry, and the recreational boating and environmental communities, has spent several months refining a Virginia Clean Marina Guidebook for use by marina operators and recreational boaters. The Guidebook provides information on implementing best management practices (BMPs) at marinas. It also provides summaries of the pertinent state and federal laws affecting marinas, as well as agency contacts for more information. Fact sheets provided in the guidebook can be copied and distributed to boaters. The guidebook is available on-line at www.vims.edu/adv/vamarina/.

A Marina Technical Advisory Program was established at the Virginia Institute of Marine Science Sea Grant Office in 1999. The Marina Technical Advisory Specialist, Harrison Bresee, is currently focusing on developing technical information on environmental and economic issues, and working with marinas who have pledged to achieve voluntary designation as a Virginia Clean Marina.

Plans for the first Clean Marina Awards Ceremony in September 2001 are underway. Seventeen marinas have pledged to participate in the program and work toward designation. The goal is to have at least fifty full-service Virginia Clean Marinas by September 2003. Workshops were conducted in March and April of this year to introduce the program and present information on a series of topics, including stormwater management, pollution prevention and derelict vessels. Thanks to the York River Yacht Haven, Tidewater Marine Trade Association Boat Show at Windmill Point, Washington Sailing Marina, and the Wachapreague Eastern Shore Laboratory/VIMS for hosting these workshops. Additional workshops are planned this fall.

For further information, please contact Jeannie Lewis Butler at (804) 698-4333 or e-mail: jlbutler@deq.state.va.us, or Mark Slauter at (804) 692-0839 or e-mail: mslauter@dcr.state.va.us. Visit the Program's Web site at www.deq.state.va.us/vacleanmarina/. Also see Virginia's Coastal Nonpoint Source Program Receives Final Approval!, page 14.

Virginia Clean Marina Process

Pledge—submit a complete pledge form

Complete a Self-Assessment—using an evaluation checklist, which contains criteria taken directly from the Clean Marina Guidebook.

Host a Site Visit—submit a completed checklist and request a formal site visit from MTEAC. If the results of the site visit confirm adequate assessment scores, a recommendation for Clean Marina designation is made to the full Committee. (At any time, a marina operator can request an informal site visit by the Marina Specialist at VIMS as a precursor to the formal visit.)

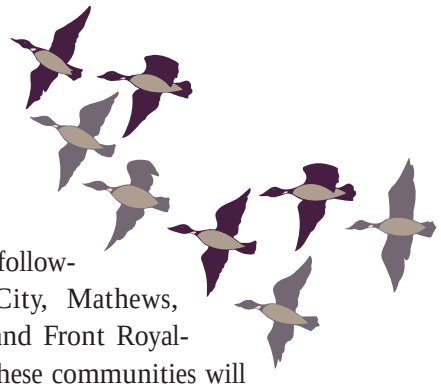
Report Annually—to retain designation and consider additional projects that prevent pollution.

Virginia Marinas Seeking Clean Marina Designation!

Aquia Harbor Marina, *Stafford County*
Coans River Marina, *Lottsburg*
Ginney Point Marina, *Cobbs Creek*
Hampton Public Piers, *Hampton*
Hope Springs Marina, *Stafford County*
Leesylvania State Park, *Prince William County*
Locklies Marina, *Topping*
Old Point Comfort Marina, *Hampton*
Port Kinsale Marina, *Kinsale*
Salt Ponds Marina, *Hampton*
Smith Point Marina, *Reedville*
Tidewater Yacht Agency, *Portsmouth*
Two Rivers Yacht Club, *James City County*
Urbanna Bridge Marina, *Urbanna*
Washington Sailing Marina, *Alexandria*
Wormley Creek Marina, *Yorktown*
York River Yacht Haven, *Gloucester Point*

Picture above:Washington Sailing Marina

VEDP Seeks to Address Conservation Issues in Economic Development



The Virginia Economic Development Partnership (VEDP) has initiated a new program to help local and regional economic development staff work more closely with conservation and environmental interests in their communities. *Crossroads: Addressing Conservation Issues in the Economic Development Process* seeks to help economic development staff recognize, avoid or work through situations in which their activities clash with environmental, preservation and other community values.

The *Crossroads* program, funded by the Virginia Coastal Program, will launch five workshops in June and July for counties located east of I-95. (Workshop dates will be posted on the Virginia Coastal Program Web site as soon as they become available.) The workshops are tailored for county, city and regional staff working in economic development, community development and regional planning, as well as local elected officials and representatives from chambers of commerce, Main Street programs and other business development groups.

Each workshop will feature case studies from communities in which multiple stakeholders are engaged in the development process and where strategies seek to meet the needs of the local community, economy and environment. Case studies focus on projects and initiatives on Virginia's Eastern Shore, in the City of Portsmouth and in the following counties: James City, Mathews, Winchester-Frederick, and Front Royal-Warren. Leaders from these communities will help workshop participants in the coastal area explore tools and outreach appropriate to their regions.

"We will showcase communities where collaboration between economic and environmental interests occurred at various levels in the economic development process—community planning, site suitability and business location. Each case study will reflect diverse sources of conflict and measures of success," explains Neal Barber, Senior Community Assistance Manager at VEDP. Mr. Barber will work with Megan Gallagher, a Virginia-based consultant in conservation strategic planning and communications.

Coastal communities attending the workshops can qualify for up to 10 days of technical assistance from the Crossroads team as they apply these tools to their city or county this fall. Participants also will receive a *Crossroads* workbook, containing the case studies and tools. For more information about the Crossroads Program, or for a copy of the workbook, contact Neal Barber at 804-371-0022 or e-mail NBarber@YesVirginia.org

Benefits of Becoming a Virginia Clean Marina

Studies show that those marinas where best management practices have been implemented are able to receive slightly higher slip rental rates and have lower vacancy rates. It is also anticipated that some level of regulatory flexibility will be given to the marina as a result of these voluntary efforts.

Participation in the Virginia Clean Marina Program can result in the following benefits:

- ✔ Protection and improvement in water quality in the immediate vicinity of the marina.
- ✔ An aesthetically pleasing facility that will attract responsible boaters who respect and follow good boating practices.
- ✔ Reduced costs associated with waste disposal.
- ✔ Free technical assistance through the Marina Technical Advisory Program.
- ✔ Improved water quality and habitat for living resources.
- ✔ Formal recognition of a marina's accomplishment through an awards ceremony.
- ✔ Unlimited use of the Virginia Clean Marina logo for advertising and on the marina's letterhead.
- ✔ Free advertising for the marina through newsletter articles, the clean marina Web site, and use of the marina's name during program displays and workshops.
- ✔ Improved worker safety, ensured regulatory compliance, and decreased legal liabilities.

News Around The Zone

1 Eastern Shore Ground Water Ordinance Under Development

The Eastern Shore of Virginia Ground Water Committee, with assistance from the Accomack-Northampton Planning District Commission (A-NPDC), is in the process of developing a ground water protection ordinance. The need for the ordinance was first identified in 1991 during development of the Ground Water Supply Protection and Management Plan for the Eastern Shore of Virginia.

The ground water plan documented the need to better manage ground water resources to prevent contamination and overpumping of the Eastern Shore's four freshwater aquifers, which are underlain by saltwater.

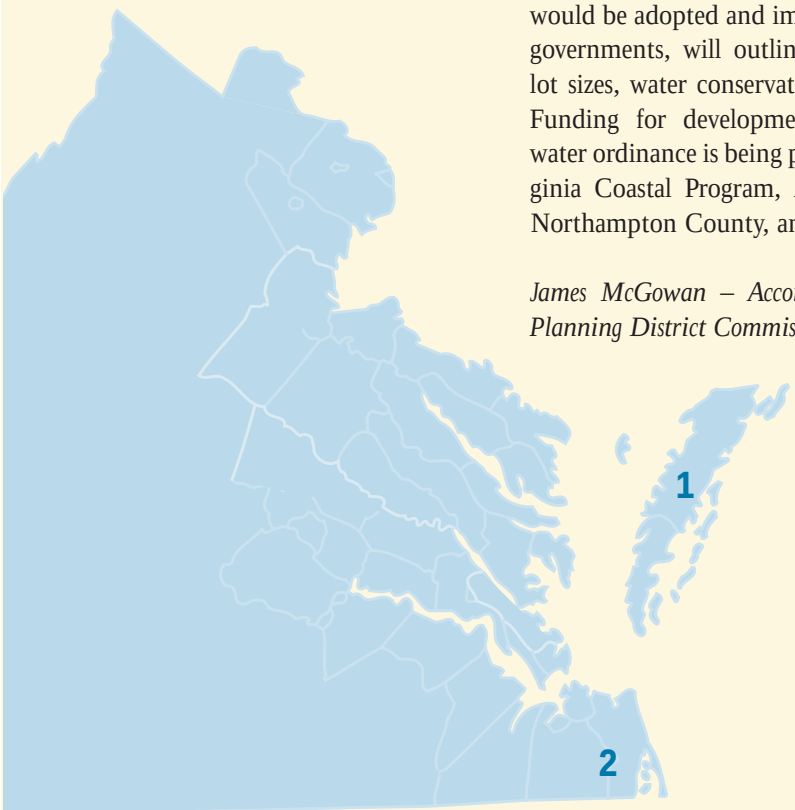
Since publication of the ground water plan in 1992, the Department of Environmental Quality (DEQ) has reduced the size of several industrial ground water withdrawal permits in the Eastern Shore Ground Water Management Area and now requires permits for major agricultural withdrawals.

However, while large residential developments can easily exceed the DEQ permit threshold of 300,000 gallons per month, a DEQ permit is not required unless a central water system serves the development. Therefore, residential developments with individual wells do not fall under the same review and management as farms and industries using similar amounts of ground water.

In order to determine the amount of residential development that would pose a similar impact as large industrial and agricultural withdrawals, the A-NPDC hired consulting hydrogeologist Malcolm Pirnie, Inc. of Newport News to prepare the Technical Analysis and Justification for Ground Water Ordinances on the Eastern Shore of Virginia. This Virginia Coastal Program /NOAA funded technical analysis determined that residential developments on the Eastern Shore of Virginia with 50 or more lots can use enough water to trigger a DEQ permit requirement, particularly if lawns are being irrigated.

The ground water ordinance, which would be adopted and implemented by local governments, will outline requirements for lot sizes, water conservation, and irrigation. Funding for development of the ground water ordinance is being provided by the Virginia Coastal Program, Accomack County, Northampton County, and the A-NPDC.

James McGowan – Accomack Northampton Planning District Commission



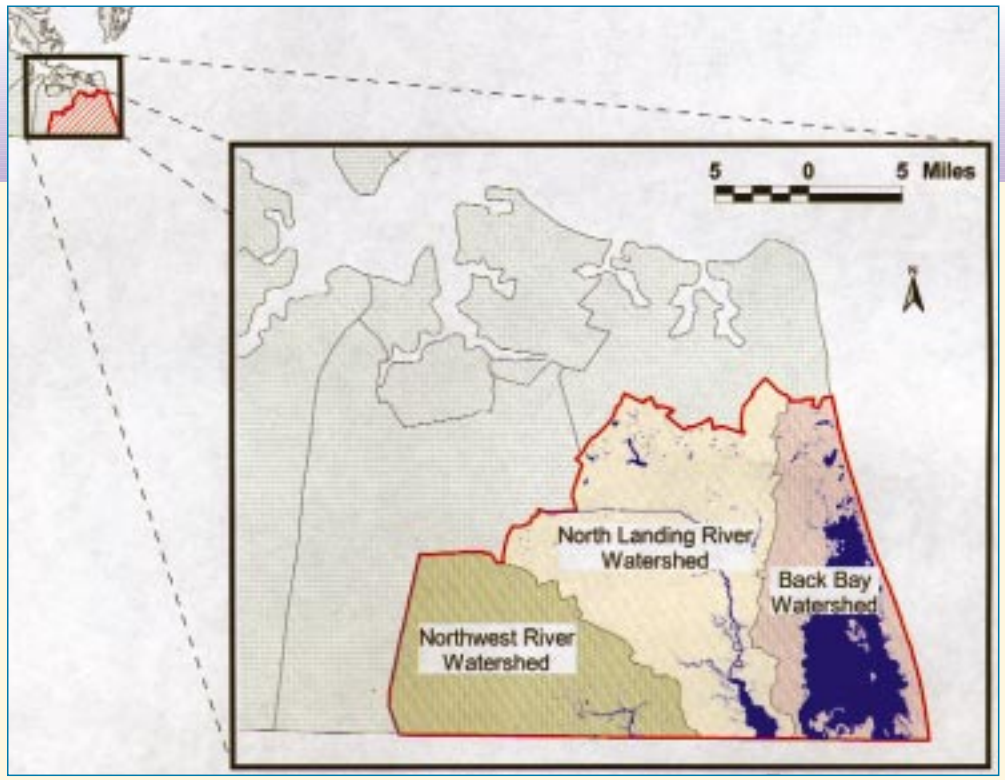
2 Progress Continues on Southern Watershed Management Program

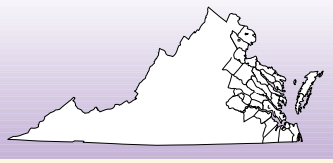
This initiative, funded by the Virginia Coastal Program through a grant from the National Oceanic and Atmospheric Administration, is a collaborative planning and management program among the Cities of Chesapeake and Virginia Beach, the Hampton Roads Planning District Commission and the Virginia Coastal Program. The Southern Watershed Management Program was created to help find a balance between the economic and residential development needs of the two cities and protection of open-space, natural resources, sensitive lands, and water supplies of the Southern Watersheds Area (SWA).

Within the Cities of Chesapeake and Virginia Beach, the SWA includes the Northwest River, North Landing River, and Back Bay watersheds, which comprise the northern extent of the Albemarle–Pamlico Estuary. (See page 5 for a related article on the SWAMP.)

Water Use Conflict Educational MOA Signed for the North Landing River

Representatives from a broad range of local, state and federal agencies gathered on April 30, 2001 at Munden Point Park in Virginia Beach to sign a Memorandum of Agreement (MOA) to voluntarily decrease water use conflicts on the North Landing River. The MOA outlines recommended water use areas to minimize conflict between the diverse set of recreational and commercial users of the River. In addition, the use areas are intended to aid in protection of the valuable wetland ecosystem that surrounds the river by minimizing damage by watercraft.





Location and physiographic context of the Southern Watershed Area. Map courtesy of Division of Natural Heritage, DCR

The MOA includes a Water Use Plan Map for the North Landing River that depicts the areas of the River that are best suited for Low Impact Recreation, General Recreation and Special Use/High Speed Recreation. Low Impact Recreational activities such as canoeing and kayaking are recommended in the smaller tributaries and the narrow northern portion of the River. General Recreational activities, which include most motor boat usage, are recommended in the wider southern section of the River. Finally, high-speed recreational activities such as water skiing and jet skiing are recommended in the broadest and deepest section of the River.

The MOA was developed as part of the Southern Watershed Area Management Program (SWAMP) collaborative effort. The Cities of Chesapeake and Virginia Beach, Hampton Roads Planning District Commission, Virginia Department of Environmental Quality, Virginia Department of Conservation and Recreation, Virginia Department of Game and Inland Fisheries, United States Army Corps of Engineers, United States Coast Guard and the United States Fish and Wildlife Service all participated in the development of the MOA and signed the finished document.

Implementation of the MOA will include development of educational materials for inclusion in boater safety programs and installation of signs with the Water Use Plan Map at launch areas. In addition, a survey of boaters on the North Landing River will be performed both before and after implementation of the educational program to determine its effectiveness.

Eric Walberg – Hampton Roads Planning District Commission

SWA Conservation Plan

The Virginia Department of Conservation and Recreation's Division of Natural Heritage has prepared a Conservation Plan as part of the Southern Watershed Area Management Program (SWAMP). The Conservation Plan provides a science-based foundation for conserving the SWA's biological resources by (1) identifying the most significant resources that remain, (2) delineating land and water areas that support them, and (3) outlining management practices necessary for their short and long-term viability. Extensive wetlands of the SWA have helped to protect the region's natural resources from rapid development patterns so evident just northward, and as a result, substantial high quality natural habitat remains. Currently, the SWA supports 19 rare natural communities, 67 rare plant species such as Elliot's aster, spreading begonia, and salt-marsh spikerush, and 22 rare animal species such as the Virginia Rail, Swanson's warbler, and Dismal Swamp southeastern shrew.

Conservation corridors are proposed as the strategic means by which open-space benefits can be maintained. Corridors provide connectivity between primary natural habitats that otherwise become isolated by unplanned land use development patterns. The Plan presents a set of options for landscape-level conservation corridor placement suggesting increasing levels of natural resource conservation. Options are based on various combinations of (1) currently protected lands, (2) known Natural Heritage conservation sites, and (3) additional corridor lands proposed for short- or long-term protection and management actions. Five options are presented in a series of maps that display proposed landscape visions varying considerably in extent and ranging from the status quo to a high level of natural resource conservation.

The Conservation Plan is one component of a multi-tiered project to address pressing development, land use, and natural resource issues in the SWA. Completed first, the Conservation Plan serves as a sound basis for the remaining project components: Agriculture Preservation Plan, Rural Area Preservation Plan, Multiple Benefits Conservation Plan.

This suite of SWAMP plans together have the objective of designing a landscape yielding optimum long-term natural resource, open-space, economic, and quality of life benefits to the citizens of the SWA.

Sandra Y. Erdle – Virginia Department of Conservation and Recreation, Division of Natural Heritage

Surf the Skies with the Falcons of FalconTrak

Falcon chicks grow at an incredible rate. About 28 days after birth, their adult plumage is beginning to appear and they are testing the budding strength of their wings.

The FalconTrak Web site, sponsored by Dominion, offered a view of the falcons nesting on VDOT's James River Bridge and the hatching of their chicks in April. Go to **www.dom.com** for a gallery of photos documenting the event. "The cameras opened up an exciting new world," said Bill Bolin, Dominion's chief biologist. "We were able to witness and experience one of nature's miracles—the birth of a peregrine falcon." The Web site will also be used to track the movements of the young falcons.

Falcons... *continued from page 3*

that the bridge tender crew could rescue the chick and after having it checked out, return it to its nest."

This past year, the agency helped Dominion install eight different Web cameras at two nesting sites on the Newport News area bridge. These cameras recorded the hatching of the pair's chicks and the feeding and growth of the young birds for their first few weeks. Three additional chicks were relocated to the James River Bridge nest and reared with "James" and "Virginia's" two chicks. Four of those birds were then moved from the bridge site to Dominion's hack site in Richmond. The fifth bird stayed with "Virginia" and "James" to help ensure their return to the nest site next year. By removing the other chicks from bridge nesting sites and using them to establish populations in other parts of the state, Game and Inland Fisheries biologists hope the young falcons will imprint on their hack sites and return as breeding adults.

The Virginia Department of Game and Inland Fisheries, which has been working for 20 years to restore peregrine falcons in the Commonwealth, works with the Center for Conservation Biology to monitor the falcons on each bridge. While there has been some success in establishing breeding pairs in the eastern part of the state, efforts to return the falcon to its native nesting areas in other parts of the state continue. The agency will be responsible for mapping the movements of the falcons over the three-year project, with the information gathered by the NOAA satellite and received by Northstar.

As the FalconTrak Project continues, the Center for Conservation Biology, assisted by wildlife biologists from DGIF, will work with each partner to monitor its nesting and hack sites, equip the birds with transmitters and plan the release. The Center also will compile all the data collected by the tracking and will issue its findings in a report at the end of the study in 2004.

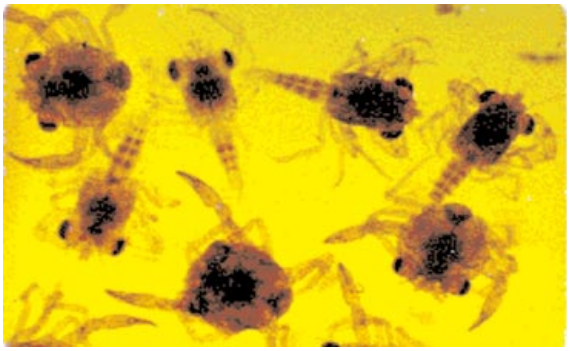
Dan Genest, Dominion Power FalconTrak Project, contributed to this article.

Schools are Partners Too

Dominion has partnered with eight schools in and outside Virginia who will "adopt" a falcon and track its daily progress via the Internet. The Virginia schools include Crestwood Elementary School in Richmond, York County High School and Yorktown Middle school in York County and Leesburg Elementary School in Loudoun County.

Deep Water, Shallow Water and the Blue Crab

In June 2000, the Virginia Marine Resources Commission established a 665-square-mile blue crab sanctuary in the Chesapeake Bay that reaches from the Maryland-Virginia line down to a historical spawning sanctuary near the mouth of the Bay. Close monitoring of the blue crab stock in this region by Rom Lipcius and his colleagues at the Virginia Institute of Marine Science showed that this deep-water corridor provides a significant site for spawning. According to Lipcius, the new sanctuary could protect nearly half the adult female blue crabs in Virginia's waters.



Post larval (upperleft center) and first juvenile stage (uppermost left) of the blue crab. Photo courtesy of Virginia Institute of Marine Science

Blue crabs, *Callinectes sapidus*, which range along the Atlantic and Gulf coasts of North America, are the world's largest crab fishery. Although they fluctuate in abundance interannually with seasonal and yearly changes in distribution, the Chesapeake Bay has been home to the largest numbers of blue crabs. The blue crab is a migratory species. After molting and mating in the Chesapeake Bay and its tributaries, newly inseminated female crabs either migrate via shallow and deep dispersal corridors to spawning grounds in the lower Chesapeake Bay in summer, or they migrate to the lower bay in fall, overwinter, and then spawn the following year from late spring through summer.

Despite previous management measures to protect spawning female blue crabs, the Chesapeake Bay has suffered a major reduction in population. Data suggest that a sustainable fraction of blue crab spawning stock has not been maintained to ensure a healthy blue crab population. Surveys of adult female blue crabs shows substantial concentrations in deeper waters outside of the historical sanctuary. The new spawning sanctuary will protect spawning female blue crabs in waters deeper than 35 feet from June 1 through September 15. "It is generally accepted that sanctuaries or marine protected areas enhance recruitment of individuals from the protected segment of the spawning stock to the full population. When conserving a migratory species, protecting the species' migration corridors is also a potentially necessary complement to marine protected areas," explains Lipcius.

In an upcoming article, we will discuss the value of the current spawning sanctuary in conserving a sustainable fraction of the blue crab spawning stock in Chesapeake Bay. We will also explore the utility of expanding the sanctuary into shallow-water habitats, such as seagrass beds, a critical blue crab nursery area. Despite the recent emphasis on the use of marine protected areas in the conservation of marine species, this attempt at developing a more comprehensive sanctuary that protects a species throughout its life cycle, is one of the only known efforts of its kind worldwide.

A distinct, yet parallel issue to the new blue crab sanctuary and a further expansion of the sanctuary is the value of shallow waters for multiple and often competing uses. Highly productive shallow water habitats are affected by many human activities such as aquaculture, commercial and recreational fishing, dredging, recreational boating and shoreline development. The next Coastal Program News will also present a new comprehensive perspective of managing our shallow water environments and addressing potential use conflicts. We will focus on a significant effort currently underway by the Virginia Institute of Marine Science, the agencies of the Virginia Coastal Program, and the Chesapeake Bay Commission to create a management plan and policy options for the Commonwealth to strike an equitable balance among competing uses of this valued coastal resource.

Satilla River on Georgia's coast. Photo courtesy of Georgia Coastal Management Program

Georgia on Our Minds!

Jeannie Butler, Senior Coastal Program Coordinator, participated in Georgia's first coastal management evaluation as the state peer review participant on a NOAA Federal evaluation team. Although Georgia's Coastal Management Program was just approved in 1998, the Coastal Resources Division of the Georgia Department of Natural Resources has been managing fisheries, protecting tidal marshes and shorelines, and tackling tough coastal management issues since 1978. Having a coastal management program has helped Georgia to streamline permitting procedures, increase scientific research, provide technical assistance to localities, as well as institute a comprehensive water quality monitoring program, and broaden public and professional understanding of key coastal resource issues. The Evaluation Team was treated to an extraordinary helicopter tour transitioning from Atlanta through the coastal plain areas of Savannah and south to Cumberland Island. Georgia is home to approximately one third of the salt marshes on the East Coast. The weeklong visit was an excellent opportunity to exchange ideas between sister programs. Thanks to the Georgia DNR for the warm southern hospitality!

Oysters... *Continued from page 2*

reefs with nearby enhanced harvest areas—as the best overall strategy for oyster restoration in the entire Bay.

Efforts by state agencies, private conservation organizations and both the private and public oyster industry to attain more federal funding for oyster restoration has resulted in $3 million dollars to implement oyster restoration projects similar to the VOHP model baywide. These federal funds, received by the Corps, include $1.7 million for reef sites in Virginia. Over the last few months, DEQ and VMRC staff have been working with the Corps on a reef restoration plan for the Tangier Sound. Reef sanctuaries and enhanced harvest area are planned.

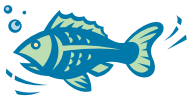
Shell is in short supply in Virginia, and continued availability of shell is one of the biggest challenges currently facing the VOHP. Fossil shells Virginia once purchased from Maryland, are now earmarked for reef restoration projects in Maryland. Virginia has not dredged fossil shells since the 1960's and is currently seeking a DEQ/VMRC Joint Permit to dredge shells from shellbeds in the James River. VMRC is also experimenting with several alternative materials including broken concrete as possible cultch. The VOHP will look to its wide partnership base for strategies to deal with the cultch issue in the months to come.

www.deq.state.va.us/oysters

If you haven't had the opportunity to visit the VOHP display…

The VOHP has partnered with the Port Kinsale Foundation to bring a restored skipjack to Hampton Bay Days on September 7-9, 2001 and to the Urbanna Oyster Festival on November 2 & 3, 2001. Come visit the display and tour the Virginia W, built in Guilford Virginia in 1904!

Value of the VOHP Reefs Enhanced by Further Research Opportunities...



Reefs at four sites in the Rappahannock River (Drumming Ground, Temple Ground, Parrot's Rock and Mill Creek) are being studied by the Virginia Institute of Marine Science to evaluate the effects of scale on oyster reef restoration. Dr. Mark Luckenbach, Director of the VIMS Eastern Shore Laboratory, and associates are conducting the study with funding from Virginia Sea Grant.

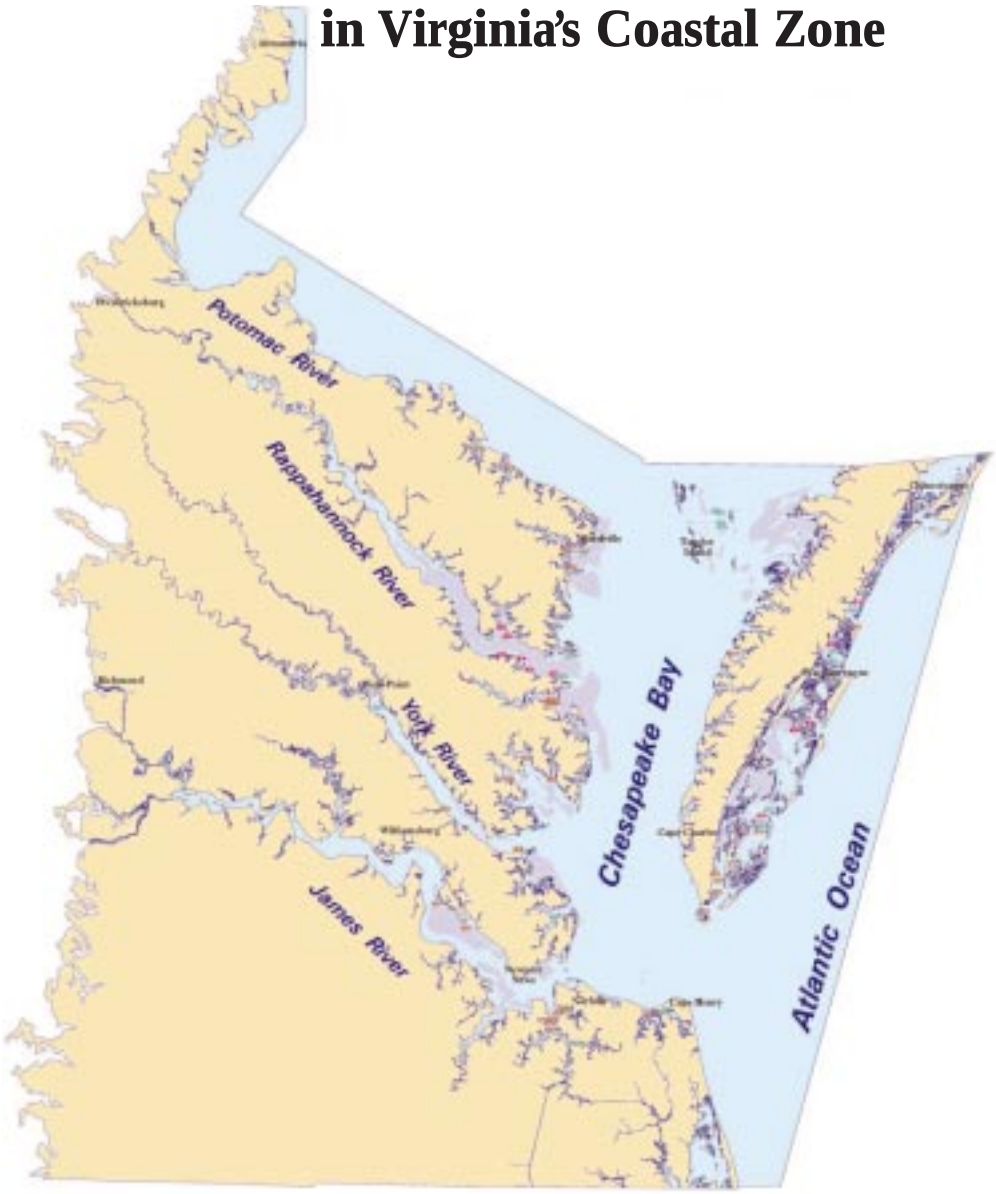
Numerous questions related to the optimal scale for restored oyster reefs remain unanswered. What is the relationship between reef scale and oyster population development and reef persistence? What is the relationship between reef scale and habitat utilization by other species? This VIMS project will begin to clarify how the spatial scale of constructed oyster reefs not only affects oyster growth, fecundity and survival, but also the biodiversity and abundance of resident and transient species. At the conclusion of this study we hope to better understand how to create oyster reef sanctuaries and bio-reserves.

"In terrestrial conservation biology this topic has often been characterized as the SLOSS (Single Large or Several Small) debate, but is more generally about optimizing the scale of a bio-reserve or sanctuary to achieve the desired ecological benefits. For oyster reef restoration, we believe that this is a critical issue because shell substrate is limiting and expensive. Thus, we need to know how to best allocate this resource to restore ecologically functional habitats and support sustainable fisheries," explains Dr. Luckenbach. Three sizes of reef bases were constructed in each of the four areas in the summer of 2000: Large (62 m x 12 m x 2.5 m high), Medium (31 m x 6 m x 2.5 m high) and Small (6 m x 6 m x 2.5 m high). The reefs will be monitored monthly during April-November in 2001 and 2002.

"Opportunities to investigate questions of scale in restoration ecology are rare for obvious reasons of costs," continues Dr. Luckenbach. "A large-scale, well replicated experiment on oyster restoration, could only be accomplished within the context of a large-scale restoration project such as the Virginia Oyster Heritage Program. Working with Jim Wesson of the Virginia Marine Resources Commission, we have selected locations and established an experimental design that will specifically permit us to address issues related to scale in the restoration of these habitats. The results of this study will be directly relevant to resource managers involved in reef restoration."

Shell being off-loaded from a barge at a Rappahnnock River reef restoration site (photo above) and a constructed reef in the Piankatank River (photo below). Note how the top of the 8 ft or higher reconstructed reef is exposed at low tide. Reefs naturally grow in a 3-dimensional structure as oysters settle one upon another building the reef upwards. The reefs being reconstructed throughout Virginia's coastal zone mimic this natural reef formation and provide valuable protection and habitat to young oysters and a multitude of other marine species. Photos courtesy of the Virginia Marine Resources Commission.

Status of Oyster Reef Restoration in Virginia's Coastal Zone



Virginia Oyster Heritage Program reef restoration site under construction

Virginia Oyster Heritage Program reef restoration site completed

Early reef restoration site

Baylor grounds (public oyster grounds)

COASTAL CLIPS

Virginia Coastal Nonpoint Source Pollution Program Receives Final Approval!

On May 15, 2001, Virginia became the sixth state to receive full approval of its Coastal Nonpoint Pollution Control Program. Charles N. Ehler, Acting Director Office of Coastal Resources Management at NOAA and Thomas C. Voltaggio, Acting Regional Administrator, USEPA Region III signed the letter stating "We congratulate you on being the sixth of the thirty-three state, commonwealth, and territory coastal nonpoint programs to receive full approval. We look forward to working closely with you to implement your program and further protect and restore the coastal waters of Virginia."

Virginia has been working toward approval of its Coastal Nonpoint Pollution Control Program since September 1995. Development of the program was initiated in the fall of 1992 in response to Section 6217 of the Coastal Zone Management Act Reauthorization Amendments of 1990. With this approval, Virginia remains eligible for full funding under the CZMA for Section 306 (Coastal Program), 319 (Clean Water Act) and 6217 (NPS) monies.

For more information on Virginia's Coastal Nonpoint Source Pollution Program, please call Mark Slauter at (804) 692-0839. Mark is the Coastal NPS Program Coordinator with the Virginia Department of Conservation and Recreation, the lead agency responsible for management of nonpoint source pollution in Virginia's Coastal Program. Visit the DCR Web site for a copy of the approval letter at www.state.va.us/dcr/sw/index.htm.

Virginia Revising Federal Consistency Manual

Virginia Federal Consistency staff are currently updating the Commonwealth's *Federal Consistency Manual* in response to recent changes in the federal consistency regulations. The draft manual will be circulated to interested parties for review and comments.

On Friday, December 8, 2000, NOAA published in the *Federal Register* the Final Rule revising the Coastal Zone Management Act's Federal Consistency regulations. Federal consistency requires the federal government and private parties using federal licenses and permits to abide by state laws, regulations and policies that are part of a state's coastal management program. As a legal tool, federal consistency ensures that state and federal governments cooperate and coordinate their efforts. Federal consistency covers projects that affect people's ability to use land or water (such as boating, public access to the coast, or fishing) or natural resources (such as wetlands, birds, beaches or fish). By asking federal and state governments and private parties to communicate and coordinate early in planning a project, problems can be avoided and everyone can save time and money.

It has been 20 years since the original federal consistency regulations were published and many changes were needed, including provisions to reflect the 1990 and 1996 statutory changes to the CZMA. Over the past several years, NOAA closely coordinated and collaborated with federal agencies, coastal states and others to develop the revisions. The *Federal Register* citation for the Final Rule is 65 Fed. Reg. 77123-77175. It can be accessed and downloaded at the U.S. GPO Web site (www.http://www.access.gpo.gov/) by scrolling down to the *Federal Register* link. For more information on Virginia's Federal Consistency Program, please contact Ellie Irons at (804) 698-4325.

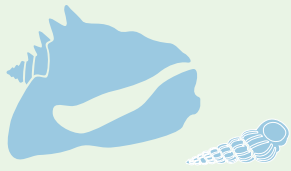
New Coastal Staff

Diane Barns

We welcome Diane Barns to the Coastal Program as our new Program Assistant.

In addition to providing administrative and database management support, Diane will assist with the program's outreach activities.She comes to us from the Environmental Education Program here at DEQ.

Diane has worked within the environmental field in development and outreach capacities for over 15 years. She has focused on a variety of natural resource fields including karstlands, wildlife, forests, and water education programs. Diane developed the concept for Project Underground and guided it into a national program. Most recently she has been involved with Governor Gilmore's statewide initiative for environmental education, Virginia Naturally.



COASTAL CONTRIBUTIONS

Recent Conferences Explore Environmental Initiatives & Sustainability

Virginia Environment 2001: The Environmental Century—Age of Innovation

On April 4 & 5, 2001, 540 leaders in state and local government, business and environmental organizations traveled to the Virginia Military Institute in Lexington, Virginia to participate in Environment Virginia 2001. Attendees participated in sessions about current environmental initiatives and programs in Virginia, including Total Maximum Daily Loads (TMDLS), Environmental Management Systems (EMS), Environmental Education, transportation issues, stormwater and biosolids. Among the keynote speakers were John Paul Woodley, Secretary of Natural Resources, William Baker, President of the Chesapeake Bay Foundation, and Rear Admiral Christopher Cole, Commander Navy Region Mid-Atlantic. PowerPoint presentations from the conference are available on-line at http://vmirl.vmi.edu/ev/ DEQ is a co-sponsor of the annual conference.

Virginia's Sustainable Future II: Solutions for Environment, Business and Communities

In Richmond, on June 6–8, 2001, this second state-wide conference continued to build its reputation as the premiere conference on sustainability in Virginia.

Conference topics included: green building practices and sustainable community design and development; energy-saving, environmentally sensitive transportation innovations; sustainable fisheries; ecotourism; environmentally sensitive business practices; renewable energy, innovative energy technologies and energy service options; and the value of natural resources in supporting a strong economy. Keynote speakers included John Paul Woodley, Secretary of Natural Resources, Hullihen Williams Moore, Commissioner of the SCC, Thomas Votlaggio, US EPA Region III, William Parks, US DOE, William Browning and Thomas Feiler of the Rocky Mountain Institute and Michael Pawlukiewicz of the Urban Land Institute.

The Virginia Coastal Program and the Office of Pollution Prevention at DEQ and the Virginia Housing Development Authority were principle supporters of the conference. The Virginia Housing and the Environment Network and the Department of Conservation and Recreation were also key members of the conference planning committee. A complete list of speakers, topics, and sponsors is available on the conference Web site at http://www.deq.state.va.us/vsf2/.

Publications funded by the Virginia Coastal Program:

"*Boat Safely, Respect Wildlife*" – Virginia Marine Science Museum, February 2001:

This brochure explains how boats and personal watercraft can negatively affect marine wildlife, and introduces ways to minimize this potentially harmful interaction. Laws designed to protect marine mammals and other endangered marine species are explained, and Guidelines for Responsible Vessel Operation Around Wildlife are offered. The brochure also describes the types of wildlife found in the coastal waters of Virginia to aid in their identification, and features artwork donated by Virginia Beach artist, Rick Romano.

"A Natural Heritage Inventory of the Dragon Run Watershed" (Natural Heritage Technical Report 00-03) – Virginia Department of Conservation and Recreation, Division of Natural Heritage (DCR-DNH), May 2000:

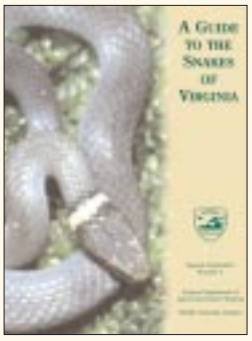
This natural heritage inventory, an element of the Dragon Run Watershed Protection Project funded by the DEQ/Coastal Program, details the location and ecological status of rare floral and faunal species and natural communities found in the Dragon Run watershed. The Dragon Run Watershed Protection Project is a cooperative effort between Gloucester County and the Friends of Dragon Run and Virginia Outdoors Foundation to protect the watershed's natural resources and promote conservation easements as tools for watershed protection. This will be used to identify areas of the watershed where preservation and easement efforts need to be focused.

Other Coastal-Related Publications:

"*Voluntary Guidelines for Recreational Activities to Control the Spread of Zebra Mussels and Other Aquatic Nuisance Species*" – U.S. Coast Guard, December 2000:

These guidelines were published in the Federal Register by a multi-agency committee of the Aquatic Nuisance Species (ANS) Task Force. They define what aquatic nuisance species (ANS) are and how they can negatively impact natural aquatic environments and native species. It provides clear and concise information on how to avoid transporting and spreading ANS, including specific procedures for water-related recreational activities that individuals can follow in order to prevent the transport of ANS. These guidelines can be accessed on-line at: http://152.119.239.10/docimages/p56/119638.pdf; or contact JoAnne Hanson, LTJG at (202) 267-2079/ jhanson@comdt.uscg.mil.

"*A Guide to the Snakes of Virginia*" by Michael J. Pinder and Joseph C. Mitchell – Virginia Department of Game and Inland Fisheries (DGIF), April 2001:



This free colorful 32-page identification booklet provides information on biology, distribution, and behavior for each species of snake found in Virginia. The guide also includes information on snake conservation. It was funded by the DGIF Nongame and Endangered Wildlife Program's tax refund check-off, the Virginia Herpetological Society, and the Society of the Study of Amphibians and Reptiles. Call or visit any DGIF office for your free copy. For numbers and locations visit the DGIF Web site at www.dgif.state.va.us.

Susan Watson – Virginia Coastal Program

Coastal Calendar

If you would like to add an event or deadline to the Coastal Program News or Web site calendar, please call Virginia Witmer, Newsletter Editor at (804)698-4320 or e-mail: vgwitmer@deq.state.va.us

July 15–19 - CZ '01 - 12th international symposium on coastal resource management, Cleveland - www.csc.noaa.gov/cz2001/

Dec. 5–7 - Virginia Coastal Partners' Workshop, Casacades Conference Center, Williamsburg - www.deq.state.va.us/coastal/

CARA Rises Again!

The Conservation and Reinvestment Act (HR 701) has been reintroduced. This bill could provide as much as $17 million per year for Virginia's coastal management projects and another $31 million for other conservation projects in the Commonwealth. Ask your Congressman to support CARA and keep up with CARA news by visiting www.cara.state.va.us.

Upcoming Virginia Coastal Program Displays...

July 15–19: CZ '01 Conference, Cleveland
July 19–Aug. 1: Boy Scout Jamboree, Fort A.P. Hill
Sept. 5 & 6: Virginia Tech Farm and Family Showcase, Blacksburg
Sept. 7: Bay Seafood Festival, Belle Isle State Park
Sept. 7–9: Bay Days, Hampton
Sept. 27–Oct. 7: Virginia State Fair, Richmond
Oct. 5–7: Eastern Shore Birding Festival, Northampton County
Oct. 14: Green Sea Festival, Munden Point Park, Virginia Beach
Nov. 1–3: Urbanna Oyster Festival - Urbanna
Dec. 5–7: Virginia Coastal Partner's Workshop, Williamsburg

Please visit the Virginia Coastal Program Web site Calendar for more information – www.deq.state.va.us/coastal/calendar/

Environmental Education in Virginia Gets a Boost!

Governor Gilmore created the Virginia Environmental Education Advisory Committee (VEEAC). Composed of a group of devoted citizens, the VEEAC has been tasked with recommending ways to strengthen environmental education in Virginia. The VEEAC's draft report to Governor Gilmore is now available on the Web at http://veeac.smv.org/. You are encouraged to visit the Web site and review the recommendations for the future of environmental education in Virginia. Learn more about the Virginia Naturally environmental education initiative at www.vanaturally.com.

COASTAL PROGRAM NEWS

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Virginia Witmer
Public Outreach Coordinator / Newsletter Editor
Diane Barns
Coastal Program Support Technician

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